

## 16. Eastern Longleaf Pine Savannah

**Rarity Rank:** S1/G1

**Synonyms:** Pine Savannah, Pine Flatwood, Grass-Sedge Bog, Pitcher-Plant Prairie, Pitcher-Plant Meadow, Pitcher-Plant Bog, Herbaceous Bog, Flatwood Bog

**Ecological Systems:** CES203.375 East Gulf Coastal Plain Near-Coast Pine Flatwoods

**General Description:**

Longleaf pine flatwood savannahs (pine savannahs) are floristically rich, herb-dominated wetlands, that are naturally sparsely stocked with longleaf pine (*Pinus palustris*). They historically dominated the Gulf coastal plain flatwood regions of southeast and southwest Louisiana EGCP and LWGCP. The term "savannah" is classically used to describe expansive herb-dominated areas with scattered trees (Smith 1996).



Pine savannahs are found naturally on broad "flats" occupying the poorly drained and seasonally saturated/flooded depressional areas and low flats. These communities are subject to a highly fluctuating water table, from surface saturation and shallow flooding in late fall/winter/early spring to growing-season droughtiness. In the EGCP, pine savannahs are commonly associated with mesic pine flatwoods intermingled on slight rises and low ridges, and typically grade down slope to slash pine-pondcypress/hardwood forest, bayhead swamp and/or small stream forest (LNHP 1986-2004). Soils in eastern longleaf savannahs are hydric, very strongly acidic, nutrient-poor fine sandy loams and silt loams, low in organic matter. The soils may be underlain by an impeding layer, are slowly permeable and water runs off the surface slowly. Some common soils are Myatt fine sandy loam, Guyton silt loam, and Stough fine sandy loam.

For the most part, savannah remnants seen today are relatively limited in size compared to the broad expanses that once existed. Presettlement habitat was a very open "forest" (canopy cover averaged much less than 50%), with the scattered trees almost exclusively longleaf pine. Few shrubs and hardwoods were encountered, except in wetter depressional acid swamps (e.g., slash pine-pond cypress/hardwood forest and bayhead swamp) and along creek bottoms that bisected the flatwoods region (Smith 1996). Fire, soil conditions and a seasonally high water table work in concert to control community structure in longleaf pine flatwood savannahs, but fire is considered the critical element in their maintenance. All of the species indigenous to pine savannahs have evolved over millennia within a regime of frequent (once every 1 to 4 years) lightning-season surface fires and most depend on fire for perpetuation in their natural habitat. Among other things, fire stimulates flowering and fruit/seed production of savannah herbs and

pyrophytic shrubs, deters invasion by fire-intolerant woody vegetation, and exposes mineral soil for seedlings of indigenous herbs and longleaf pine to become established. In the absence of frequent burning, pine savannahs quickly succeed into shrub/tree thickets, and sun-loving herbs are reduced and most are eventually eliminated without fire (Smith 1996).

Pine savannahs support a rich variety of plant species. The community is most often dominated by numerous types of grasses and sedges, but is noted by many for its interesting collection of insectivorous plants and showy orchids, lilies and others, and for its very high floristic diversity. Many of the plants known from pine savannahs are restricted to this habitat or closely-allied hillside bogs. Common woody species include *P. palustris* (longleaf pine, usually predominant tree species), *Pinus elliottii* (slash pine, in EGCP), *Magnolia virginiana* (sweet bay), *Nyssa sylvatica* (blackgum), *Quercus virginiana* (live oak), *Q. marilandica* (blackjack oak), *Q. laurifolia* (laurel oak), *Cyrilla racemiflora* (swamp cyrilla), *Morella* spp. (waxmyrtles), *Hypericum* spp. (St. John's worts), and *Styrax americana* (littleleaf snowbell). *Taxodium ascendens* (pondcypress, in EGCP) may occur but is usually restricted to slightly lower areas within the site. Herbaceous vegetation of pine savannahs is very diverse, dominated by graminoids, and similar to that occurring in hillside bogs. Graminoids present include *Andropogon* spp. (broomsedges), *Schizachyrium scoparium* and *S. tenerum* (little and slender bluestem), *Panicum* spp. (panic grasses), *Aristida* spp. (three-awn grasses), *Ctenium aromaticum* (toothache grass), *Muhlenbergia capillaris* (hairawn muhly), *Erianthus* spp. (plume-grasses), *Coelorachis* spp. (jointgrasses), *Rhynchospora* spp. (beak-rushes) including *Rhynchospora chapmanii* (S2) and *Rhynchospora compressa* (S1S2), *Xyris* spp. (yellow-eyed grasses), *Fuirena* spp. (umbrella grasses), *Scleria* spp. (nut-rushes), *Dichromena latifolia* (giant white top sedge), *Eriocaulon* spp. (pipeworts), *Lachnocaulon* spp. (bog buttons), and *Fimbristylis* spp. (fimbry-sedge). Some forbs common in the community include *Sarracenia* spp. (pitcherplants) including *Sarracenia psittacina* (parrot pitcherplant, S3), *Agalinis* spp. (gerardias), *Lobelia* spp. (lobelias), *Rhexia* spp. (meadow beauties), *Eryngium integrifolium* (bog thistle), *Oxypolis filiformis* (narrow-leaved hog-fennel), *Polygala* spp. (milkworts), *Liatris* spp. (blazing-stars), *Sabatia* spp. (rose-gentians), *Drosera* spp. (sundews), *Pinguicula* spp. (butterworts) including *Pinguicula lutea* (S2), *Utricularia* spp. (bladderworts), and *Platanthera* spp. (fringed-orchids). Various additional species belonging to the lily family (Liliaceae) including *Aletris lutea* (yellow colic-root) and *Tofieldia racemosa* (coastal false-asphodel, S2S3), species from the sunflower family (Asteraceae) including *Carphephorus pseudoliatris* (chaffhead), and members of the orchid family (Orchidaceae) including *Cleistes bifaria* (spreading pogonia, S1) are prominent. *Lycopodium* spp. (club-mosses) and sphagnum moss are often abundant (Smith 1996, LNHP 1986-2004).

### **Current Extent and Status:**

Historically the eastern Florida Parishes of Louisiana were dominated by extensive stands of longleaf pine. Now barely 1 % of the original estimated 100,000 to 500,000 acres of longleaf pine savannahs remains. Land conversion, development, and timber production were initial factors in this habitat loss. Today there are a few thousand acres

in small blocks scattered across this area. TNC protects and manages about 4,272 acres of longleaf savannah on portions of their Abita Creek, Lake Ramsey and Talisheek Preserves. LDWF also owns and manages the larger portion of Lake Ramsey WMA, with 796 acres of savannah. The Big Branch, Pearl River, and Bogue Chitto NWF collectively contain about 7,000 acres of “pine flatwoods” with remnants of savannah herbaceous layers, and some of these sites are in the process of being restored to longleaf systems. A very few private tracts are recorded with the Louisiana Natural Areas Registry Program for a total of 13 acres. In light of the significant losses of this habitat and it’s importance to numerous wildlife target species, it is critical that an inventory is conducted for all remaining savannah sites, followed by identification and prioritization of areas for conservation and restoration of this habitat type.



<b>EASTERN LONGLEAF PINE SAVANNAH SPECIES OF CONSERVATION CONCERN (37)</b>		
<b>AMPHIBIANS</b>	Chuck-Will's-Widow	<b>MAMMALS</b>
Eastern Tiger Salamander	Red-cockaded Woodpecker	Southeastern Myotis
Southern Dusky Salamander	Brown-headed Nuthatch	Southeastern Shrew
Four-toed Salamander	Sedge Wren	Eastern Harvest Mouse
Oak Toad	Loggerhead Shrike	Long-tailed Weasel
Barking Treefrog	Prairie Warbler	Eastern Spotted Skunk
Ornate Chorus Frog	Bachman's Sparrow	
Eastern Spadefoot	Field Sparrow	<b>REPTILES</b>
Dusky Gopher Frog	Henslow's Sparrow	Eastern Slender Glass Lizard
	Le Conte's Sparrow	Eastern Glass Lizard
<b>BIRDS</b>	<b>BUTTERFLIES</b>	Northern Scarlet Snake
Northern Harrier	Yucca Giant Skipper	Mole Kingsnake
Northern Bobwhite	Little Metalmark	Scarlet Kingsnake
Yellow Rail		Pine Woods Littersnake
American Woodcock		Southeastern Crowned Snake
		Harlequin Coralsnake

### *Priority Species Research and Survey Needs:*

**Northern Bobwhite:** Populations have declined precipitously from 1980-1999, averaging 8.2% per year in BCR 25; 6.0% per year in BCR 26; 5.8% per year in BCR 27; 4.5% per year in BCR 37. Continue to monitor populations thru breeding bird and hunting surveys.

**Bachman's Sparrow:** Intensive surveys are needed to produce estimates of current population size statewide. Develop projects which determine relationship between population size and vegetation succession on quality sites. Determine whether management activities can create a mosaic of adjacent sites that together provide continuously occupied habitat. Determine dispersal behavior to maximize the benefits/effects of future habitat management.

**Henslow's Sparrow:** Obtain more information on winter habitat abundance, distribution, and habitat needs throughout Louisiana.

Bats: Conduct habitat use and life history studies for species that may potentially use this habitat (e.g., big brown bat, southeastern myotis).

Eastern Harvest Mouse: Considered vulnerable in Louisiana, intensive surveys needed to update occurrence records and abundance for inclusion in the LNHP database.

Songbirds:

- Continue to support research on silviculture/land management practices and their effects on all songbird species.
- Continue to monitor songbird abundance and reproductive success (with emphasis on species of conservation concern) in natural habitats as compared to commercial stands through the establishment of MAPS stations and BBS routes to determine species utilization patterns between these habitats.

Establish monitoring systems and protocols for medium and small mammals to determine current population abundances and trends in this habitat.

Determine the microhabitat preferences and requirements of species utilizing eastern longleaf pine savannah to understand how these species are utilizing this habitat and to determine management needs.

***Species Conservation Strategies:***

1. Henslow's Sparrow, Bachman's Sparrow:
  - Implement conservation and management recommendations of SWG projects T22 and T32 upon completion.
  - Monitor reproductive success of Bachman's sparrows to determine limiting factors.
  - Work with landowners to encourage use of BMPs for prescribed fire management and timber harvesting techniques to improve habitat quality.
2. Red-cockaded Woodpecker:
  - Continue to support implementation of the Louisiana Statewide Red-cockaded Woodpecker (RCW) Safe Harbor Program.
  - Support USFWS recovery efforts outlined in the RCW recovery plan, 2<sup>nd</sup> Revision.
  - Encourage the establishment of new RCW populations.
  - Investigate potential land acquisition of this habitat type to increase and support new populations.
3. Northern Bobwhite and Grassland Birds: Support implementation of recommended habitat restoration actions specified in NBCI and by LDWF quail and grassland bird task force.
4. Eastern Slender Glass Lizard, Northern Scarlet Snake, Mole Kingsnake, Scarlet Kingsnake, Southeastern Crowned Snake, Harlequin Coralsnake: Observations on this guild of longleaf specialists have declined significantly in recent years. Promote

increased acreage and natural management of longleaf pine as a timber resource and substitute for loblolly monoculture.

5. Amphibians:

- Develop educational information and management techniques to address ephemeral ponds and their importance to all amphibians, with emphasis on species of conservation concern, and make this information available to landowners/land managers through technical pamphlets and the LDWF website.
  - Promote management recommendations developed by Partners for Amphibian and Reptile Conservation (PARC).
6. Encourage the retention of snags during logging operations to increase the number available for cavity-nesting wildlife species. Efforts need to be made to maintain sufficient levels of woody debris in stands for reptiles, amphibians and small mammals.
7. Document the habitat relationships of species of conservation concern and how dependent they are upon eastern longleaf pine savannah, relative to other habitat types.

***Threats Affecting Habitat:***

The following table illustrates the threats identified for this habitat type and the sources of these threats. This represents all threats and sources of threats identified across all ecoregions of the state where this habitat occurs.

Source of Threat	Threat				
	Altered Composition/ Structure	Habitat Destruction or Conversion	Habitat Disturbance	Habitat Fragmentation	Modification of Water Levels; Changes in Natural Flow Patterns
Commercial/industrial development		XXX		XXX	
Construction of ditches, drainage or diversion systems	XXX	XXX	XXX		XXX
Conversion to agriculture or other forest types		XXX		XXX	
Development/maintenance of pipelines, roads or utilities		XXX	XXX	XXX	
Fire suppression	XXX				
Incompatible forestry practices	XXX		XXX		XXX
Invasive/alien species	XXX				
Residential development		XXX	XXX	XXX	

***Habitat Conservation Strategies:***

1. Conduct surveys to determine extent and condition of this habitat type with a focus on identifying the surrounding landscape context (i.e., residential developments, etc.) that might be affected by prescribed burning management.
2. Educate landowners, adjacent residents, developers, and the general public about the crucial role of prescribed burning in the management of longleaf pine systems (multi-agency, multi-group effort).
3. Encourage longer rotation ages when compatible with the landowner's management objectives.
4. Once savannahs are identified conduct landowner surveys to aid in the development of management strategies for these sites.
5. Promote the advantages of growing longleaf pine and associated herbaceous ground cover.
6. Work with land managers/hunting clubs/extension agents, etc. to discourage the placement of food plots in this habitat type.
7. Promote utilization of state and federal cost share programs (Forest Land Enhancement Program (FLEP) and NRCS programs) to address invasive species problems.
8. Provide additional cost share funds through programs such as FLEP in order to drastically reduce or eliminate landowners' costs associated with conducting prescribed burns their property.
9. Work with appropriate planning commissions to provide LNHP data that illustrates locations of this habitat type.
10. Investigate the availability of additional cost-share funding opportunities, through FLEP, FPP or other programs, for landowners to reduce the cost of longleaf pine management.
11. Encourage a university curriculum that incorporates the identification of sensitive natural areas into student studies (especially landscape architecture and courses for planners).
12. Work with the Longleaf Alliance to incorporate their strategies for longleaf pine management and restoration into current restoration efforts.

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